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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/559,883	04/26/2000	Michael Freed	99,918	1786

20306 7590 12/18/2003

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CHICAGO, IL 60606

EXAMINER	..
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JACOBS, LASHONDA T

ART UNIT	PAPER NUMBER
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2157

DATE MAILED: 12/18/2003

6

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application

09/559,883

Applicant(s)

FREED ET AL.

Examiner

LaShonda T. Jacobs

Art Unit

2157

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 and 10-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 and 10-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

This Office Action is in response to Applicant's amendment filed on September 22, 2003. Claim 9 has been cancelled. Claims 1-8 and 10-29 are presented for further examination.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-8 and 10-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schroeder et al (hereinafter, "Schroeder", 6,327,626) in view of Ramanna et al (hereinafter, "Ramanna", WO 00/67433)

As per claim 1, Schroeder discloses a method for changing a maximum segment size for a connection between a data source and a data receiver on a network comprising the steps of:

- receiving an announcement of a first connection between said source and said data receiver (abstract, col. 2, lines 52-62, and col. 3, lines 10-34); and
- changing said maximum segment size in said announcement of said first connection to a determined maximum segment size (abstract, col. 1, lines 23-45, lines 52-67, and col. 3, lines 10-34).

However, Schroeder does not explicitly disclose:

- wherein the determined maximum segment size reduces message fragmentation.

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Ramanna discloses a method and apparatus for optimizing a buffer comprising:

- wherein the determined maximum segment size reduces message fragmentation (abstract, pg. 2, lines 21-34, pg. 3, lines 1-17, pg. 4, lines 33-34, pg. 5, lines 1-21, pg. 6, lines 10-16 and pg. 8, lines 29-34).

Given the teaching of Ramanna, it would have been obvious to one of ordinary skill in the art to modify Schroeder by including intermediate elements with internal buffers that dynamically vary in size based on the negotiated MSS in order to reduce the total buffer size and prevent the reduction in the TCP throughput.

As per claim 2, Schroeder further discloses:

- recalculating a checksum of said announcement (col. 1, lines 52-57, col. 3, lines 10-34, lines 55-67, and col. 4, lines 5-23).

As per claim 3, Schroeder discloses:

- wherein said announcement comprises a first message of a data stream in said connection (col. 2, lines 63-67, and col. 3, lines 1-34).

As per claim 6, Schroeder discloses:

- wherein changing said maximum segment size comprises changing said maximum segment size in a TCP header in said announcement (col. 1, lines 23-45, lines 62-67, col. 3, lines 10-34, lines 55-67, and col. 4, lines 5-23).

As per claim 7, Schroeder discloses:

- wherein said determined maximum segment size is preprogrammed into a database (col. 1, lines 23-45, col. 3, lines 63-67, col. 3, lines 1-34, lines 55-67, and col. 4, lines 5-23).

As per claim 10, Schroeder discloses:

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- wherein said determined maximum segment size avoid re-assembly of fragments (col. 1, lines 38-45, and col. 3, lines 18-27).

As per claim **25**, Schroeder discloses an apparatus for reducing message fragmentation between a data source and a data receiver connected by a network comprising:

- a network device connected to the network, wherein said network device changes a maximum segment size to a determined maximum segment size used in data transmission between said data source and said data receiver (abstract, col. 1, lines 23-45, lines 52-67, and col. 3, lines 10-34); and
- a storage device connected to said network device for storing said determined maximum segment size for data transmitted between said data source and said data receiver; wherein said network device stores said determined maximum segment sizes in accordance to data communication between said data source and data receiver (col. 1, lines 23-45, col. 3, lines 63-67, col. 3, lines 1-34, lines 55-67, and col. 4, lines 5-23).

As per claim **22**, Schroeder discloses a method of reducing message fragmentation between the data source and the data receiver connected by a network comprising the steps of:

- intercepting a first announcement of a first connection between said data source and said data receiver (abstract, col. 2, lines 52-62, and col. 3, lines 10-26); and
- predicting a determined maximum segment size of said first connection, wherein said determined maximum segment size is placed in a signal (col. 1, lines 23-45, lines 62-67, col. 3, lines 10-34, lines 55-67, and col. 4, lines 5-23).

However, Schroeder does not explicitly disclose:

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- sending said signal with a no-fragment option set to said data source and said data receiver.
- storing said determined maximum segment size, whereupon said determined maximum segment size results from a signal response having a maximum transmission unit that is no larger than a maximum transmission unit of said network.

Ramanna discloses a method and apparatus for optimizing a buffer comprising:

- sending said signal with a no-fragment option set to said data source and said data receiver (pg. 3, lines 4-18, pg. 5, lines 22-34 and pg. 6, line 1-2);
- storing said determined maximum segment size, whereupon said determined maximum segment size results from a signal response having a maximum transmission unit that is no larger than a maximum transmission unit of said network (abstract, pg. 2, lines 21-34, pg. 3, lines 1-17, pg. 4, lines 33-34, pg. 5, lines 1-21 and pg. 6, lines 10-16).

Given the teaching of Ramanna, it would have been obvious to one of ordinary skill in the art to modify Schroeder by including intermediate elements with internal buffers that dynamically vary in size based on the negotiated MSS in order to reduce the total buffer size and prevent the reduction in the TCP throughput.

As per claim **23**, Schroeder discloses the invention substantially as claimed.

However, Schroeder does not explicitly disclose:

- wherein said determined maximum segment size is iteratively predicted until a message maximum transmission unit is no larger than a maximum transmission unit of said network.

Ramanna discloses a method and apparatus for optimizing a buffer comprising:

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- wherein said determined maximum segment size is iteratively predicted until a message maximum transmission unit is no larger than a maximum transmission unit of said network (abstract, pg. 2, lines 21-34, pg. 3, lines 1-17, pg. 4, lines 33-34, pg. 5, lines 1-21 and pg. 6, lines 10-16).

Given the teaching of Ramanna, it would have been obvious to one of ordinary skill in the art to modify Schroeder by including intermediate elements with internal buffers that dynamically vary in size based on the negotiated MSS in order to reduce the total buffer size and prevent the reduction in the TCP throughput.

As per claim 24, Schroeder discloses the invention substantially as claimed.

However, Schroeder does not explicitly disclose:

- wherein said no-fragment option is set in an IP header within said signal.

Ramanna discloses a method and apparatus for optimizing a buffer comprising:

- wherein said no-fragment option is set in an IP header within said signal (pg. 3, lines 4-18, pg. 5, lines 22-34 and pg. 6, line 1-2).

Given the teaching of Ramanna, it would have been obvious to one of ordinary skill in the art to modify Schroeder by including intermediate elements with internal buffers that dynamically vary in size based on the negotiated MSS in order to reduce the total buffer size and prevent the reduction in the TCP throughput.

As per claim 11, Schroeder discloses a method of reducing message fragmentation for a connection between a data source and a data receiver on a network comprising the steps of:

- resetting said first connection, wherein resetting said first connection initiates a second connection (at least implicitly)(col. 3, lines 10-34); and

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- placing said maximum segment size into an announcement of said second connection (col. 1, lines 23-45, lines 62-67, col. 3, lines 10-34, lines 55-67, and col. 4, lines 5-23).

However, Schroeder does not explicitly disclose:

- receiving a first message fragment of a first connection between said data source and said data receiver; and
- storing a maximum segment size of said first message fragment of said first connection, wherein said maximum segment size exists in accordance with said first message fragment.

Rammanns discloses:

- receiving a first message fragment of a first connection between said data source and said data receiver (abstract, pg. 2, lines 21-34, pg. 3, lines 1-17, pg. 4, lines 33-34, pg. 5, lines 1-21 and pg. 6, lines 10-16); and
- storing a maximum segment size of said first message fragment of said first connection, wherein said maximum segment size exists in accordance with said first message fragment (abstract, pg. 2, lines 21-34, pg. 3, lines 1-17, pg. 4, lines 33-34, pg. 5, lines 1-21 and pg. 6, lines 10-16).

Given the teaching of Ramanna, it would have been obvious to one of ordinary skill in the art to modify Schroeder by including intermediate elements with internal buffers that dynamically vary in size based on the negotiated MSS in order to reduce the total buffer size and prevent the reduction in the TCP throughput.

As per claim 12, Shroeder further discloses:

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- recalculating a checksum of said announcement of said second connection (col. 1, lines 52-57, col. 3, lines 10-34, lines 55-67, and col. 4, lines 5-23).

As per claim 13, Schroeder discloses the invention substantially as claimed.

However, Schroeder does not explicitly disclose:

- wherein said first message fragment comprises a first message of a data stream in said connection.

Ramanna discloses:

- wherein said first message fragment comprises a first message of a data stream in said connection (abstract, pg. 2, lines 21-34, pg. 3, lines 1-17, pg. 4, lines 33-34, pg. 5, lines 1-21 and pg. 6, lines 10-16).

Given the teaching of Ramanna, it would have been obvious to one of ordinary skill in the art to modify Schroeder by including intermediate elements with internal buffers that dynamically vary in size based on the negotiated MSS in order to reduce the total buffer size and prevent the reduction in the TCP throughput.

As per claims 4 and 14, Schroeder discloses:

- wherein said announcement comprises a set SYN bit (col. 3, lines 10-34, and lines 55-67).

As per claims 5 and 15, Schroeder discloses:

- wherein said first connection is one of any virtual connections utilizing TCP/IP between said data source and said data receiver col. 2, lines 63-67, and col. 3, lines 1-9).

As per claims 8 and 21, Schroeder discloses:

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- wherein said data source comprises customer premise equipment, and wherein data receiver comprises customer premise equipment (col. 2, lines 52-67, and col. 3, lines 45-54).

As per claim 16, Schroeder discloses:

- wherein said second connection is a connection following said first connection (col. 3, lines 10-34).

As per claim 17, Schroeder discloses:

- wherein storing said maximum segment size comprises storing said maximum segment size in a database (col. 1, lines 23-45, col. 3, lines 63-67, col. 3, lines 1-34, lines 55-67, and col. 4, lines 5-23).

As per claim 18, Schroeder discloses:

- wherein resetting said first connection comprises closing said first connection by setting a RST bit (at least implicitly) (col. 3, lines 10-34).

As per claim 19, Schroeder discloses:

- wherein resetting said first connection initiates said second connection (at least implicitly) (col. 3, lines 10-34).

As per claim 20, discloses:

- wherein placing said maximum segment message size into said announcement of said second connection comprises placing said maximum segment message into a TCP header within said announcement of said second connection (col. 1, lines 23-45, lines 62-67, col. 3, lines 10-34, lines 55-67, and col. 4, lines 5-23).

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As per claim **26**, Schroeder discloses the invention substantially as claimed (as discussed above) including:

- wherein said announcement comprises a first message (abstract, col. 2, lines 52-67, and col. 3, lines 1-9); and
- wherein said first message comprises a set SYN bit (col. 3, lines 10-34, and lines 55-67).

However, Schroeder does not explicitly disclose:

- said first message fragment comprises a first message of a data stream in said connection.

Ramanna discloses:

- said first message fragment comprises a first message of a data stream in said connection (abstract, pg. 2, lines 21-34, pg. 3, lines 1-17, pg. 4, lines 33-34, pg. 5, lines 1-21 and pg. 6, lines 10-16).

Given the teaching of Ramanna, it would have been obvious to one of ordinary skill in the art to modify Schroeder by including intermediate elements with internal buffers that dynamically vary in size based on the negotiated MSS in order to reduce the total buffer size and prevent the reduction in the TCP throughput.

As per claim **27**, Schroeder discloses:

- wherein the network device iteratively predicts said determined maximum segment size (col. 1, lines 23-45, col. 3, lines 63-67, col. 3, lines 1-34, lines 55-67, and col. 4, lines 5-23).

As per claim **28**, Schroeder discloses:

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- wherein said storage device comprises a database (col. 2, lines 63-67, col. 3, lines 1-9, lines 55-67, and col. 4, lines 5-23).

As per claim **29**, Schroeder discloses:

- wherein said network device comprises a gateway (router) device (col. 4, lines 44-53).

Response to Arguments

3. Applicant's arguments with respect to claims 1-8 and 10-29 have been considered but are moot in view of the new ground(s) of rejection.

The Office notes the following arguments:

a. Schroeder forces the use of larger MSSs than can be handled by the host and thus enhances message fragmentation. Therefore, Schroeder's disclosure teaches directly against instant claim 25, which discloses an apparatus for reducing message fragmentation between a data source and data receiver.

b. Schroeder fails to teach a storage device that, according to the present invention, can "store the determined Maximum Segment Size for various data sources 20, 34 to data receiver 20, 34 connections" and that "for later connections between the particular data service and data receiver, the STE 64 may look up for the stored MSS" (pg. 9, lines 13-17).

c. Schroeder fails to teach every element of instant claim 25 and teaches directly against the instant claim.

d. Schroeder fails to teach a method including the step of changing said maximum segment size in an announcement of a first connection to a determined maximum segment size, wherein the determined maximum segment size reduces message fragmentation.

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e. Schroeder fails to teach any methods or devices that reduce message fragmentation, it teaches directly against such a goal.

f. Schroeder fails to teach all elements of claim 1.

g. Schroeder fails to teach the step of storing a determined MSS size as recited in the instant application.

h. Connery fails to remedy Schroeder deficiency, so whether Connery discloses the step of sending said signal with no-fragment option set to said data source and said data receiver is moot.

i. Schroeder teachings negate any motivation to combine with Connery even if, for the sake of argument, Schroeder did disclose all elements recited by Examiner.

j. Liao fails remedy the deficiencies of Schroeder established above and the combination of fails to teach all elements of claims 4-5 and 8 and consequently fails to render them obvious.

k. Liao fails to teach the step of storing an MSS.

l. Nowhere does Liao disclose that MSS values are stored for use in later connections between the particular data services and data receivers as described above.

m. Liao fails to disclose all elements recited by the Examiner in claim 11.

n. Schroeder's silence regarding storing MSSs, Schroeder fails to remedy Liao's deficiency.

Therefore, whether Schroeder discloses the steps of resetting said first connection, wherein resetting said first connection initiates a second connection and placing said maximum segment size into an announcement of said second connection is moot.

In considering (a)-(n), Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Pat. No. 5,809,254 to Matsuzono

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LaShonda T. Jacobs whose telephone number is 703-305-7494.


The examiner can normally be reached on 8:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ario Etienne can be reached on 703-308-7562. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9306 for regular communications and 703-872-9306 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

LaShonda T. Jacobs
Examiner
Art Unit 2157

ltj
December 9, 2003


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